

Appl. No. 10/709,612
Amdt. dated January 23, 2006
Reply to Office action of November 01, 2005

AMENDMENTS TO THE CLAIMS

1. (original) A multi-band low noise amplifier operated in a plurality of band modes comprising:
 - 5 a plurality of input amplifiers respectively corresponding to the plurality of band modes, each input amplifier comprising a receiving port for receiving a corresponding input signal in the band mode; and
 - an output amplifier comprising:
 - 10 at least a lowest-impedance port being a lowest-impedance node of the multi-band low noise amplifier, the output amplifier being coupled to the plurality of input amplifiers at the lowest-impedance port; and
 - an output port for outputting the input signal processed by the output amplifier.
2. (original) The multi-band low noise amplifier of claim 1 wherein the multi-band low noise amplifier can only operate in a band mode in a period of time, and only the input amplifier and the output amplifier corresponding to the band mode operate in the period of time.
3. (original) The multi-band low noise amplifier of claim 1 wherein the output port of the output amplifier is electrically coupled to a loading impedance, and the loading impedance is an inductance or a resistance.
4. (original) The multi-band low noise amplifier of claim 1 further comprising a plurality of negative feedback circuits, each negative feedback circuit comprising a resistor, a capacitor, and a switch.
5. (original) The multi-band low noise amplifier of claim 1 further comprising a plurality of negative feedback impedances, the plurality of negative feedback impedances being

Appl. No. 10/709,612
Amdt. dated January 23, 2006
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respectively electrically coupled to emitters of the plurality of input amplifiers, each negative feedback impedance being an inductance or a resistance.

- 5 6. (original) The multi-band low noise amplifier of claim 1 further comprising at least a negative feedback circuit, the negative feedback circuit being shared by the plurality of input amplifiers and electrically coupled to emitters of the plurality of input amplifier.
- 10 7. (original) The multi-band low noise amplifier of claim 1 wherein the output amplifier is electrically coupled to each input amplifier in cascode connection.
8. (original) The multi-band low noise amplifier of claim 1 wherein each input amplifier comprises at least a BJT (bipolar junction transistor), and the receiving port is a base of the BJT.
- 15 9. (original) The multi-band low noise amplifier of claim 8 wherein the output amplifier comprises at least a BJT, the output port is coupled to a base of the BJT, and the lowest-impedance port is coupled to an emitter of the BJT.
- 20 10. (original) The multi-band low noise amplifier of claim 1 wherein each input amplifier comprises at least a MOS (metal-oxide semiconductor) transistor, and the output amplifier comprises at least a MOS transistor.
11. (original) The multi-band low noise amplifier of claim 1 being applied to a receiver of a wireless communication system.
- 25 12. (original) A method used in a multi-band low noise amplifier, the multi-band low noise amplifier comprising a plurality of input amplifiers and an output amplifier, the plurality of input amplifiers respectively corresponding to a plurality of band modes,

Appl. No. 10/709,612
Amdt. dated January 23, 2006
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the method comprising:

- utilizing the plurality of input amplifiers to respectively receive a plurality of input signals corresponding to the plurality of band modes;
- connecting the output amplifier to the plurality of input amplifiers at a lowest-impedance node of the multi-band low noise amplifier in cascode connection; and
- utilizing the output amplifier to process and output the plurality of input signals.

13. (original) The method of claim 12 wherein the multi-band low noise amplifier can operate in only a band mode in a period of time, the method further comprising:
- utilizing an input amplifier corresponding to the band mode to receive and process a corresponding input signal in the period of time; and
 - utilizing the output amplifier to process and output the corresponding input signal.

14. (original) The method of claim 12 wherein the plurality of input amplifiers respectively comprise at least a BJT (Bipolar junction transistor), and the lowest-impedance node of the output amplifier is coupled to a collector of the BJT.

15. (original) A multi-band differential amplifier being operated in a plurality of band modes comprising:
- a plurality of input amplifiers comprising a plurality of positive input amplifiers and a plurality of negative input amplifiers, each band mode corresponding to a positive input amplifier and a negative input amplifier, each positive input amplifier comprising a positive receiving port and at least a positive negative feedback circuit for receiving a positive input signal in the corresponding band mode; each negative input amplifier comprising a negative receiving port and at least a negative negative-feedback circuit for receiving a negative input signal in the corresponding band mode;

Appl. No. 10/709,612

Amdt. dated January 23, 2006

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- 5 a positive output amplifier comprising at least a positive lowest-impedance port, the positive output amplifier being coupled to the plurality of positive input amplifiers in cascode connection at a positive lowest-impedance port, the positive output amplifier cooperating with a positive output loading impedance to output the processed positive input signal; and
- 10 a negative output amplifier comprising at least a negative lowest-impedance port, the negative output amplifier being coupled to the plurality of negative input amplifiers in cascode connection at a negative lowest-impedance port, the negative output amplifier cooperating with a negative output loading impedance to output the processed negative input signal.
16. (currently amended) The multi-band differential amplifier of claim ~~15~~ wherein 15 wherein in the positive output amplifier, the positive lowest-impedance port can be treated as a lowest-impedance node under the situation that the plurality of positive input amplifiers are electrically coupled to the positive output amplifier.
17. (original) The multi-band differential amplifier of claim 15 wherein the positive output loading impedance and the negative output loading impedance are respectively an inductance or a resistance.
18. (original) The multi-band differential amplifier of claim 15 wherein the positive negative feedback circuit and the negative negative-feedback circuit respectively comprise an impedance, and each impedance is an inductance or a resistance.
19. (currently amended) The multi-band differential amplifier of claim ~~15~~ wherein 15 wherein the positive negative feedback circuit is shared by the plurality of positive input amplifiers and electrically coupled to emitters of the plurality of positive input amplifiers; the negative negative-feedback circuit is shared by the plurality of negative

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Amdt. dated January 23, 2006
Reply to Office action of November 01, 2005

input amplifiers and electrically coupled to emitters of the plurality of negative input amplifier.

- 5 20. (currently amended) The multi-band differential amplifier of claim ~~15~~ 15 wherein in the negative output amplifier, the negative lowest-impedance port can be treated as a lowest-impedance node under the situation that the plurality of negative input amplifiers are electrically coupled to the negative output amplifier.